HONGCHEN METAL
INDUSTRIAL METAL MATERIALS

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PRODUCT SPECIFICATIONS · PIPE

# Hastelloy C-59 Pipe

Chemical composition, mechanical properties and material characteristics

### Features

- Hastelloy C-59 (Alloy 59, UNS N06059) is a nickel-chromium-molybdenum alloy selected for strong corrosion resistance in demanding chemical environments.
- It is commonly supplied as plate, sheet, coil, pipe, tube, and bar for process equipment fabrication.

### Typical Applications

- Used for chemical process equipment, coastal and marine atmospheres, food / pharmaceutical contact surfaces, heat exchangers, tanks and piping. Grade choice should follow the actual medium, chloride level, temperature and whether welded components remain in corrosive service.

## Product Parameters

| | |
|---|---|
| Product Name | C-59 Pipe |
| Type | Corrosion-Resistant Alloy / Stainless Steel |
| Standard | UNS N06059; ASTM B575/B619/B622 |
| Surface | BA, 2B, No.1, No.4, HL, 8K / polished, pickled or passivated as required. |
| Delivery Condition | Annealed / solution annealed; other tempers available by agreement. |
| Scope of Application | Used for chemical process equipment, coastal and marine atmospheres, food / pharmaceutical contact surfaces, heat exchangers, tanks and piping. Grade choice should follow the actual medium, chloride level, temperature and whether welded components remain in corrosive service. |
| Certificate | ISO / SGS / BV and EN 10204 3.1 MTC available; third-party inspection and PMI can be arranged per purchase order. |
| Production Technology | Hot rolling or cold rolling / drawing according to product form; solution treatment and pickling / passivation applied where corrosion performance or surface quality require it. Seamless or welded supply routes depending on size; cut-to-length and end preparation available. |
| Edge Processing | Plain, beveled or threaded ends available on request; end finishing and length tolerance per order. |
| OD | 6-610 mm |
| Wall Thickness | 0.5-30 mm |
| Length | 1-12 m |

## Chemical Composition

| Ni | Cr | Mo | Fe | Al | C |
|---|---|---|---|---|---|
| Bal | 22.0-24.0 | 15.0-16.5 | ≤1.5 | 0.1-0.4 | ≤0.01 |

## Mechanical Properties

| Tensile (MPa) | Yield (MPa) | Elongation (%) |
|---|---|---|
| ≥690 | ≥310 | ≥40 |

## Physical Performance

| Density | Melting Range | Modulus |
|---|---|---|
| 8.6 g/cm³ | ~1340°C | ~210 GPa |

*Reference: UNS N06059 Alloy 59 datasheet*

## Related Properties

| | |
|---|---|
| **Corrosion Resistance** | Provides practical corrosion resistance in atmospheric exposure, fresh water, food-contact environments and many mild chemical media. Resistance drops when chlorides, reducing acids or high-temperature concentrated solutions become dominant—match the grade to the real medium, temperature and oxygen level. |
| **Formability** | Most austenitic corrosion grades form well by bending, rolling, deep drawing and stamping when tooling radii, lubrication and springback are set for the thickness and temper. Work hardening raises strength during cold work; intermediate anneal may be needed for severe multi-stage forming. |
| **Weldability** | Generally weldable with common fusion processes. For as-welded corrosive service, prefer low-carbon (L) or stabilized grades, control heat input, and specify filler that preserves corrosion resistance in the weld metal and HAZ. Post-weld cleaning and passivation improve finished performance. |
| **Surface & Cleanliness** | Final corrosion behavior is strongly affected by surface finish, free iron contamination and weld discoloration. Pickling, passivation or electropolishing after fabrication is often as important as grade selection for sanitary, marine and chemical equipment. |
| **Selection Notes** | Use molybdenum-bearing or higher-alloy variants when pitting, crevice attack or stronger chemical media are expected. Confirm product form (plate, tube, bar, wire) and heat-treatment condition against the project specification before ordering. |

**Material guidance for your next project**

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